

3

Docket No. UF-222XC2D2

Serial No. 09/735,217

In the Claims:

1. (original) A device, comprising:  
a means for performing metal organic vapor phase epitaxy (MOVPE) on a surface of a substrate; and  
a means for performing hydride vapor phase epitaxy (HVPE) on the surface of the substrate.
2. (previously amended) The device according to claim 1, wherein said device can transition from MOVPE to HVPE *in situ*.
3. (previously amended) The device according to claim 2, wherein the substrate does not have to be removed from the device between MOVPE and HVPE.
4. (previously amended) The device according to claim 3, wherein the substrate can be maintained at elevated temperatures during transition from MOVPE to HVPE.
5. (previously amended) The device according to claim 2, wherein said device can also transition from HVPE to MOVPE *in situ*.
6. (cancel)
7. (previously amended) The device according to claim 6, wherein the substrate can be maintained at elevated temperatures during transition from HVPE to MOVPE.
8. (previously amended) The device according to claim 1, wherein said device can be used to grow a III-V nitride compound semiconductor onto the surface of the substrate.

9. (previously amended) The device according to claim 8, wherein said device can be used to grow GaN onto the surface of the substrate.

10. (currently amended) The device according to claim 9,  
wherein said means for performing HVPE comprises a hot-wall reactor having a source zone,  
and

a downstream mixing zone,  
wherein TMG can be ~~reacted~~ reacted with ~~He~~ HCl in the source zone to form a chlorinated gallium species, and wherein the chlorinated gallium species can combine with NH<sub>3</sub> in the downstream mixing zone and directed toward the substrate for deposition of GaN onto the substrate via HVPE.

11. (cancel)

12. (new) The device according to claim 1, wherein the means for performing metal organic vapor phase epitaxy (MOVPE) on a surface of a substrate comprises a reactor,

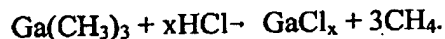
wherein the means for performing hydride vapor phase epitaxy (HVPE) on the surface of the substrate comprises the reactor,

wherein the reactor can go back and forth between MOVPE and HVPE *in situ*.

13. (new) The device according to claim 12, wherein the reactor is a hot-wall reactor.

14. (new) The device according to claim 10,

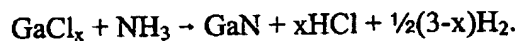
wherein TMG is reacted with HCl according to the following reaction



5

Docket No. UF-222XC2D2  
Serial No. 09/735,217

15. (new) The device according to claim 10,  
wherein growth of GaN occurs according to the following reaction



16. (new) The device according to claim 9,  
wherein said means for performing MOVPE comprises a hot-wall reactor having a  
mixing zone,  
where TMG can be reacted with  $\text{NH}_3$  in the mixing zone for deposition on GaN onto the  
substrate via MOVPE.

17. (new) The device according to claim 10,  
wherein said means for performing MOVPE comprises a hot-wall reactor having a  
mixing zone,  
wherein TMG can be reacted with  $\text{NH}_3$  in the mixing zone for deposition on GaN onto  
the substrate via MOVPE.

18. (new) The device according to claim 17,  
wherein the substrate does not have to be moved between MOVPE and HVPE.